HRIS- An Effective Knowledge Management Solution

"All knowledge is connected to all other knowledge. The fun is in making the connections." Arthur Aufderheide

S. Asiya Z. Kazmi and Marja Naaranoja

***Abstract*-This paper proposes an evaluation that how in a small business scenario, the bits and pieces of knowledge can be seen scattered at different work locations and how the management can strategically arrange and manage a viable data resource in the form of existing knowledge base to be retrieved as and when required. In the current research study, the authors tried to prove the logic by taking an example of an organizational scenario (i.e., Medicare Hospital) by displaying the positive effects of implementing an organizational knowledge management technique - i.e., HRIS, to not only streamline the effective data storage but to eliminate the redundant organizational activities associated with the duplication of knowledge collection as well as unwanted management operations and excessive storage of record keeping work processes. Current study confirmed the worth of information and communication technologies (ICT) supported human resource information system (HRIS). The findings of the study confirmed organizational control over existing work knowledge with speed, efficiency, economy and accuracy at the crucial times for the best organizational strategic decision making in line with sustainable corporate competitiveness.**

Keywords: Human resource information system, knowledge management, work processes

1. Introduction

The aim of the research article is to share the outcomes of a project on the linkage among the elements like; the raw knowledge clusters scattered at different organizational locations; human resource operations; and the supportive information technological solutions.

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In addition, the research activity will unearth the scenario in which the management of a company can strengthen its control over the in-house existing knowledge cluster for use, as and when required. To share the above, this article is divided into five sections; first chapter will highlight the theoretically the core concepts involved in the current research activity (i.e., Knowledge Management) as well as the Human Resource Information System (HRIS). In the second chapter the authors shared an example of a small scale private hospital named `Medicare Hospital`, situated at a small town in Pakistan in which the hospital management has converted its contemporary human resource management practices into an information technology based human resource information system (HRIS). In the end, the authors will discuss and conclude the study by highlighting the impact of the above referred transformational process on the overall organizational performance.

2. Theoretical background

2.1 Knowledge management

The process of knowledge management (KM) takes the aid of multiple strategic practices implemented by the organizations to assist the processes of understanding, probing, gathering, sharing and finally enabling the utilization of insights and experiences. Such awareness through insights and experiences comprise knowledge as organizational processes or practices either through the organizational workforce or reflected through the organization´s overall image itself. Since 1991 `Knowledge Management` has taken a formal shape of an established discipline (Nonaka 1991).

In today's world, the significance of knowledge management (KM) has forced many renowned organizations (i.e., private, public or NGOś) to dedicate their resources to their internal knowledge management related efforts, especially as part of their strategic business processes, information technology, or human resource

management departmental operations (Addicott, McGivern and Ferlie 2006). According to Wright (2005), the term personal knowledge management` was first introduced in 1999 to refer to the process of management of knowledge at the individual level. According to Davenport (1998) Knowledge management systems (KMS) are tools to effect the management of knowledge and are manifested in a variety of implementations. According to Becerra-Fernandez (2004), the main ingredients of Knowledge sharing include `Collection and systematic organization of information` from various sources, `Minimization of up-front knowledge engineering`, ´exploiting user feedback` for maintenance and evolution, `integration into existing environment` and finally the ´active presentation` of relevant information. Knowledge sharing is regarded as an activity when an individual disseminates his acquired knowledge to other members within an organization (Ryuet al. 2003).

2.2 Human resource information system

The departments within one Organization depend and take support from each other in the form of data sharing and intelligent ways of record management and jointly utilizing it at the time of need instead of saving similar data at different locations within one Organization. According to Bock et al (2005), Knowledge sharing relates to the acceptance by the individuals in an e-community to share their personally acquired or learnt knowledge with other. The HRIS (Human Resource Information System) is an application which automates various important human resource related knowledge based processes among the different organizational locations (i.e., horizontally as well as vertically), thereby increasing the speed and accuracy of implementing business and human functions.

According to Jansen et al (2000) the designing process of the data portals involves the steps namely; explanation of the knowledge base of a system; functions and the user interface as well as the navigation. McCallum et al (2000) further suggested that knowledge based portal can either be simply an information gateway to knowledge or it can be specialized and sophisticated. HRISś seamless, automated efficiency gives a manager time to develop effective strategies and its advanced reporting facilities assist the user to access their results upon completion. At the same time it is enabled to generate advanced manpower reports and queries, be it the effectiveness of an employee's training, his employment history in the company, employees key potential areas, employees financial worth etc. It collects and maintains all the information the manager(s) or departmental head(s) needs for virtually every function of HR management and then performs almost all associated processes automatically. HRIS facilitates double loop learning feedback that enables organizational change and discussion, intra-organizational communication and decision-making, and shared visions (Argryis, & Schon, 1996). Even total quality management of highly skilled professionals such as physicians, who can be enriched with a carefully planned HRIS (Davenport, & Glaser, 2002). It automates many business processes associated with employees, employers and organizational structures and relationships. HRIS is also an intelligent choice for the management of any organization to be comfortable about the fact that the needed HR related information can be achieved at the time of need without any difficulty.

3. Research methodology

The case study is based on experimentation. A small sized hospital, `Medicare Hospital`, was taken as a case situation. Simplified Human Resource Information System (HRIS) software was installed to create a testing organizational scenario to judge the impact of an ICT based Knowledge Management tool, i.e., HRIS, to know if the Human Resource related knowledge base is secured and available for timely utilization. A before and after survey was ran to collect feedback from the users of the traditional and new human resource management operations.

3.1 Research Questions

For the study, the research questions were:

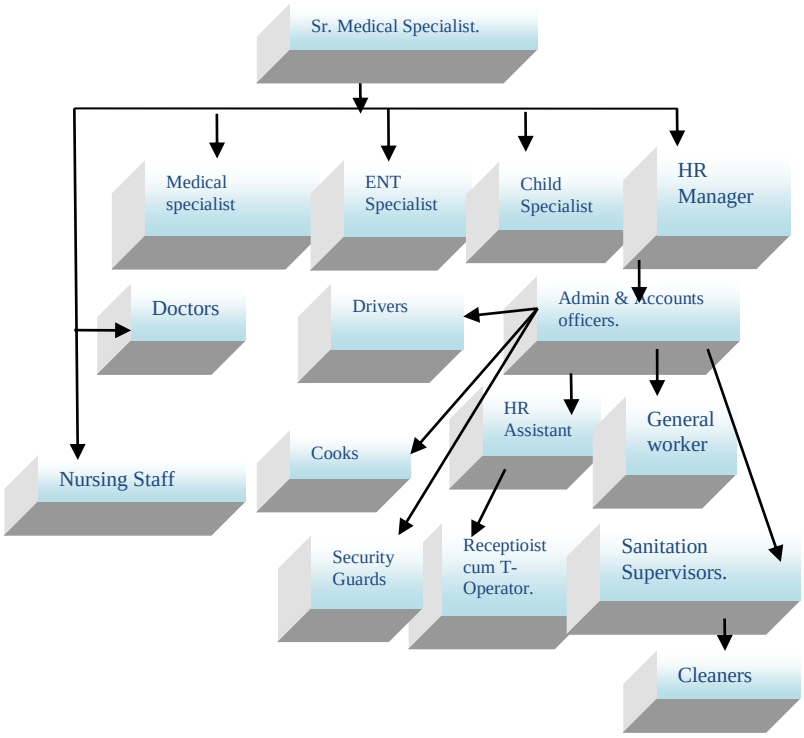
Is the management of the company confident of the fact that the required existing human resource related knowledge base will be accessible at the time of need?

Can the implementation of human resource information system (HRIS) helps in curbing duplication of knowledge scatter and redundancy from an organizational data system?

3.2 Test case situation - Medicare Hospital

A small private hospital, located in a small town in the north of Pakistan was taken as a test case. The hospital was operating with three OPD outlets i.e., General Medicine, Children Clinic and ENT section. 40 sufficiently equipped rooms, Emergency section, 1 Lab, a small cafeteria and 2 ambulances. The organizational chart of the testing location – Medicare Hospital, is as follows:

3.3 Organizational Chart and staff strength of Medicare Hospital



(Fig 1. Showing the staff hierarchy of the Medicare Hospital)

Being a busy hospital, Medicare Hospital has the staff strength of 60, which is defined as follows:

Table-1:
List showing the staff strength of the Medicare Hospital

Serial No.	*Job title*	*Head count.*
01	Specialists	07
02	HR Manager	01
03	HR Assistant	01
04	Doctors	07
05	Nurses	10
06	Admin and Accounts Officer	01
07	Sanitation Supervisor	01
08	Cleaners	10
09	General workers	06
10	Receptionist cum Telephone operator	04
11	Cooks	04
12	Drivers	04
13	Security Guards	04

4. Test situation´s traditional Human Resource knowledge management scenario

- The Organizational documentation and reporting is based on manual records.
- In the computer, information is mainly collected in the form of lists, formulated in MS Excel as well as in word processors, like MS Word.
- Job descriptions are kept in paper files and not updated regularly,
- Manual system for making duty rosters basically based on hit and trial method,
- Staff attendance system kept on register which is not authentic.
- Employee data maintained manually on paper and in files. Most of the items are duplicated. For every little detail, all items in all files are to be considered. It makes the whole process tedious so they are consulted only when very necessary. Thus the importance of maintaining these files is also undermined.
- No authentic leave record,
- Appraisals are also done as a formality as they are just filed. Hence, there is no emphasis on setting goals and follow up on their achievements and especially training related issues.
- Promotions are done only when it strikes the boss's mind.
- Vacancies remembered only when the operations suffer.

4.1 Identified flaws in the test situation, in relation to traditional human resource knowledge Management scenario

- Even though computer software packages like Excel, MS Access are being used for data input, the process of information retrieval is largely haphazard.
- There is lot of input duplication, resulting in lots of wasted man hours.
- Major focus is on hiring and firing function only.
- Staff thinks that there is no system to keep a track of their performance and their potential is not recognized so they put in bare minimum efforts and go home.
- Only doing the clerical work was difficult enough so emphasis on employees´ benefits and motivational techniques was neglected.

4.2 Recommendations prior to the conversion of the traditional system into human resource information system (HRIS)

Following were the basic step to proceed to the transformational process of the traditionally available knowledge scattered into an organized form of informational system:

- A software developer to be hired on contract to develop an Information System for effective HR Operations to streamline the `Knowledge Management system of the Hospital, for better coordination among different organizations locations (HR operations, Operations Management, Administrative as well as Accounts operations etc.).
- Storage of all job descriptions in the System.
- Transfer of all employees´ personal and administration related data from the manual registers and personal files to the HRIS.
- Automated Duty Rosters according to the flow of work.
- Records of salaries and subsequent changes.
- Feeding of Appraisal scores in the software,
- Training Needs and Compliance Record,
- Employee Attendance and Work Hour Record in the software,
- Employee hiring and Exit Record with necessary details,
- Employee vacancy Intimation System,
- Due Promotion Intimation System,
- Record of leaves. Warning on crossing a certain number of leaves,
- Records of incentives,
- Record of disciplinary Actions.

4.3 Targeted outcomes of the knowledge scatter transformation from the traditional system to the Human Resource Information System (HRIS)

It is expected that with this proposed HRIS the Hospitals' management will be able to achieve the following:

- Implanting intelligent medium for organizational `Knowledge Management` in the work place that offers strong knowledge bondage among all the other related departments (HR, Admin, Accounts, Operations etc.) and minimize the duplication of data at different locations of the same Organization (i.e., Hospital)
- More efficiency in record keeping, access and utilization,
- Better controls on all HR related issues,
- Better Time Management and work planning for the staff,
- Improve employee productivity and motivation through a more reliable system,
- More time and energy for the management to plan for employee benefits,
- More emphasis on primary responsibilities

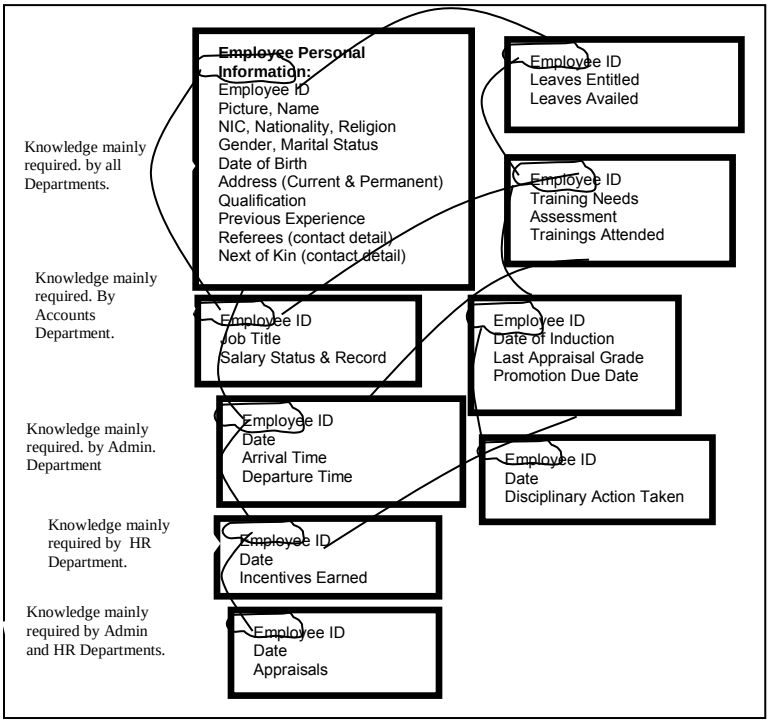
Before a decision to switch to a full-fledged HRIS (Human Resource Information System) is taken, it is prudent to consider the significance of the HRIS to justify the switching process to HRIS as well as the decision to ***Buy*** or ***Have it built*** (i.e., customization in accordance with the organizational needs). Lastly, the costs involved in the HRIS should not be underestimated. These concepts are discussed briefly hereunder.

4.4 Justification for Human Resource Information System (HRIS) – A Value Added approach

A **value added approach** requires the HRIS project team to think in business terms, and find out how a new or upgraded system will help the organization perform better. This value added approach focuses on the strategic contribution the system will make to achieve business objectives through the `Knowledge base´ it provides. It recognizes vital role of HR as an active business partner with the organization´s management and a critical service provider to the business units or organizational locations.

As an active partner executive management, HRIS helps define solutions to problems of organizational workforce utilization, organizational development, performance measurement, and adaptation to evolving business demands. As a critical provider of internal services, HRIS delivers a wide range of information (Knowledge) services that enables the business units to acquire, develop, deploy and reward the skill sets and competencies necessary for achieving the organizations business goals.

A comprehensive base of accurate, up-to-date HR information that is readily accessible to decision makers throughout the organization is absolutely essential to HRś ability to perform its key roles. However, the essential question to ask about building this information (knowledge) base is how to document its money value to justify its high cost. The value-added approach tackles the cost justification issue by linking the capabilities of the HRIS to the organizations key business strategies. Using that approach, the human resource systems manager first identifies the way the comprehensive workforce information (Knowledge) supports the organization´s business goals and makes achieving them easier. The manger (s) then develops an HRIS architecture and deployment strategy tailored to support those goals. The Value-added or strategic justification recognizes the business value of employee information (knowledge). Using this approach, the HRIS manager can define a pyramid o value to the organization, with each level of the pyramid supporting the levels above it. The pyramid is defined from the top-down, because the manger(s) must know and state the requirements of each level in order to define the requirements for supporting it.



(Fig. 2 reflects HRIS Application to segregate knowledge base for various organizational locations as per their requirement).

Figure 2 above, reflects the type of knowledge required by different work locations. This will help in segregation of data types and reducing the data load transfer and storage with respect to specific work location.

4.5 Working down the Pyramid

The pyramid of value allows the manager to identify a strategic justification based on the follows items, in this order:

- **Key business strategies -**At the top of the pyramid are the organization's key business strategies often articulated in a mission statement or similar document, then confirmed and amplified through discussions with senior executives. Those strategies define the organization´s business direction and often include initiatives such as expansion to global markets, growth by acquisition, or development of new lines of businesses as well as products. The key strategies also serve as measures for determining the organization's success or failure.

- **Human Resource strategies to support key business strategies-**Once HR leaders understand the key business strategies, they can define the implications those strategies have for the organization´s workforce, and for the HR function. Human resource information systems based knowledge support is the function and capability to provide accurate, efficient and effective support to the organization´s business direction. For example, expansion into new lines of business may call for new competencies and skill sets that must be acquired either by hiring new people or by retaining and timely developing the existing workforce.HR strategies are articulated by senior HR executives and include a comprehensive statement of what the department must contribute to achieve the organization´s key business aims.

- **Information technology (IT) strategies to support key business strategies-** Like the HR strategy, the IT strategy is derived from the organization´s strategic business statement and defines the information technology environment necessary to accomplish the organization´s business goals. The IT strategy generally takes the form of an information architecture statement describing the data and communication capabilities needed to support business goals.

- **Implications for HR information (Knowledge) management inherent through HR and IT based strategies -** HR information management is where the organization´s workforce management and information technology directions intersect. The HRIS manager must understand both HR and IT based strategies before attempting to define an appropriate system platform, because the HRIS must support the strategic directions of both the HR and IS. e.g., an HR initiative to empower line managers to make decisions at lower levels of the organization, along with information system´s (i.e., knowledge based system) architecture that provides organization-wide connections through a linked set of local areas networks, will dictate an HR information management solution that permits wide access to employee data.

4.6 High-level HRIS requirements derived from knowledge management implications

The specific functional requirements of an effective HRIS are also determined by knowledge of the Organization's strategic business direction. Any requirement should be stated in terms of its support of some element of the organization´s business strategy.

- **Potential HRIS solutions that satisfy the high level HRIS requirements -** By understanding the business requirements of an HR information system along with the business, HR and IT strategies that it must support an organization can define a set of solutions that satisfy those needs. The key to identifying potential solutions is to keep in mind the directions and strategies that must be supported. For example, an organization trying to provide greater autonomy to individual business units and line managers would be better served by a solution that calls or decentralized maintenance of employee data.
- **Platforms to support the HRIS solutions -** At this point, the HRIS project team should identify specific software; hardware and service providers who can provide solution that support the HR `knowledge management strategy`. Of course, that strategy and specific decisions about selecting HRIS products are valid only if they support the organization´s strategic business direction.

- **An implementation approach for optimum return-** Just as support for strategic initiatives drives vendor selection decisions; it also should define the approach to implementation. The schedule for implementing specific capabilities of a new system should be driven by support for strategic business initiatives, with those features and products that provide the greatest business value to the organization being put in place first.

- **Benefits of the strategy -** Using the value-added approach to justify the HRIS expenditure links the system with the key business directions of the organization, and makes apparent the critical value of HR knowledge base to business success. The HRIS becomes not just a way to reduce administrative costs but an enabler of the key business strategies. In addition to providing a framework for justifying HRIS expenditures as a strategic investment, the value-added approach emphasizes the role of HR as an active partner in achieving the organizations strategic business objectives.

4.7 Organizational `Knowledge Management` based required Organizational Management reports

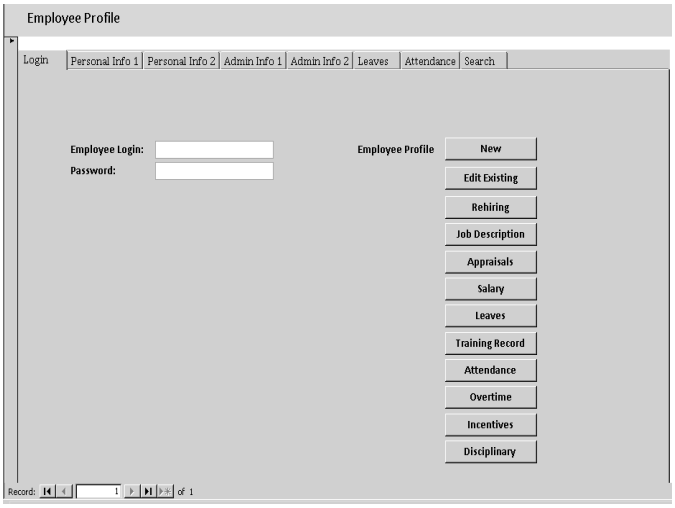
Following is a list showing the nature and frequency of the management reports that are required periodically by the human resource management of the hospital.

Table-2:
List showing organizational management reports usually generated in the Medicare Hospital

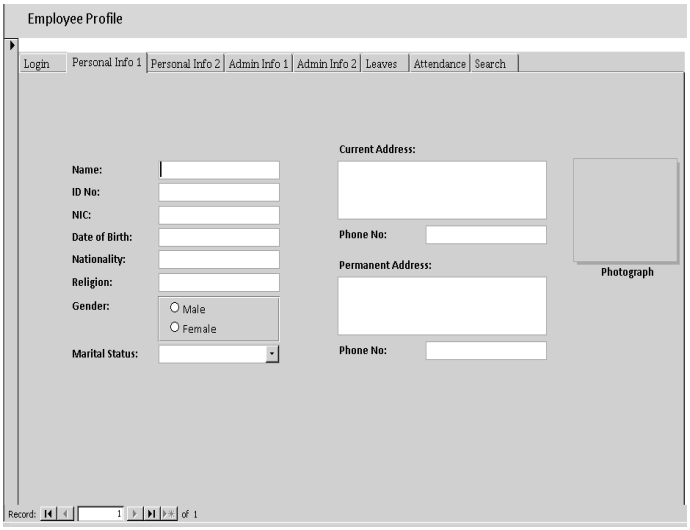
Sr. No	*Name of Report*
1	Individual Employee Profile
2	Head Count report
3	Contact details of all employees
4	Master list of due Appraisals
5	Letter Generation(from templates)
6	Incentive Report
7	Disciplinary Action report
8	Training Need Assessment Report
9	Automated Training Plan
10	Attendance of Training Report
11	Automated Duty Roster
12	Employee Attendance Record
13	Absentee Late arrival List
14	Employee´s Salary/ Perks Certificate
15	Any other Report if required specially

4.8 HRIS implementation in the target test environment

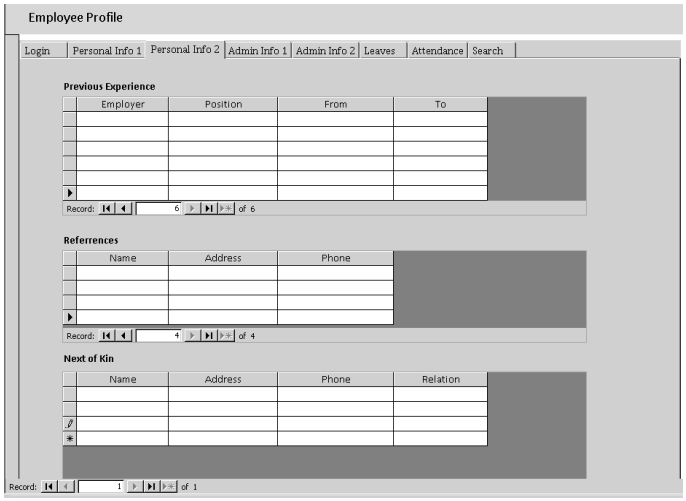
In the case of `Medicare Hospital`, the targeted organization, a parallel run of both new and old documentation systems was implemented for a period of two months. During which time, small exercises ran on the new HRIS system for error checking capability and reliability. Specialists and Admin officer were the only authorized persons to use the HRIS, hence they were trained accordingly. It is understandable and foreseeable that during the initial stage of system´s testing, there were few difficulties while the staff is switching over to the new system. There were some reporting delays and (justifiably) an initial drop in the productivity. Proper orientation and briefing was organized to apprise them of the new system and its advantages, both to the Hospital and to system operators. Following were the HRIS work frames that are now used to through HRIS to store and combine the overall human resource related knowledge bulk, which was earlier stored and utilized by different departments separately.



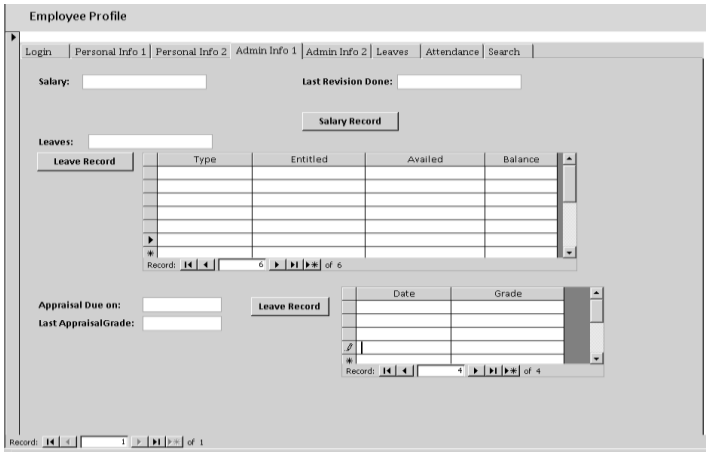
(Figure-3: Reflection of HRIS's main screen showing the unified HR data, required by different departments i.e, HR, Admin,Fin. etc.)



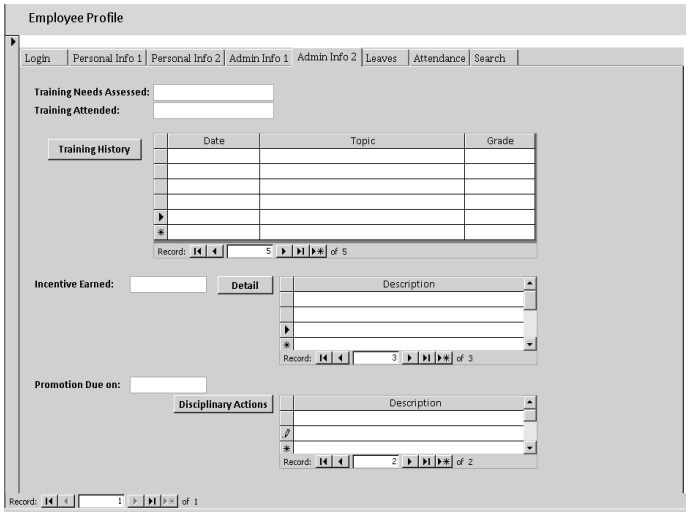
(Fig4: Basic Employee Information jointly shared by different Dept.s)



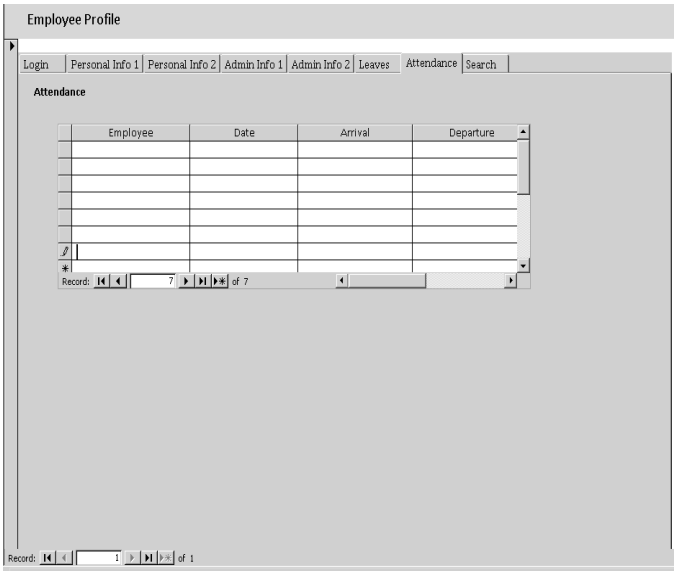
(Figure-5: Reveals the HR data shared by Dept.s like HR, Admin; Operations, or for the Higher management knowledge reports)



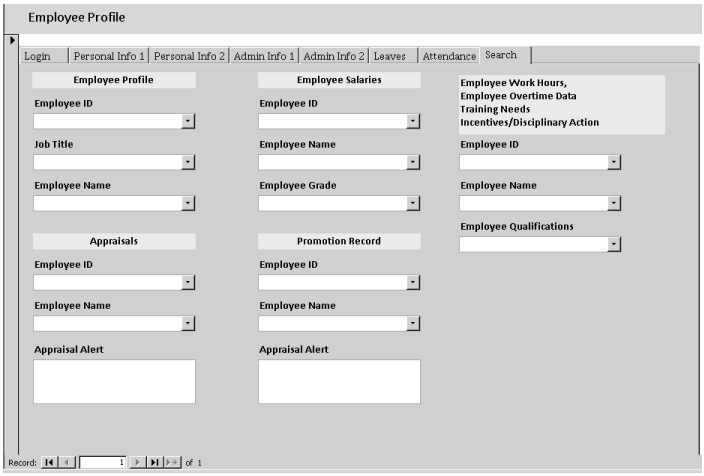
(Figure 6: HR data related to HR, Administrative, Fin. or the management Operations)



(Figure 7: HR data shared among, HR, Training, Admin, Fin. or the Management Operations.)



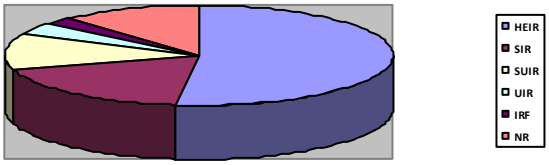
(Figure 8: HR data related to Employee Arrival and Exit, jointly shared among different Departments.)



(Figure 9: Employee data related to Appraisals and Promotions, jointly shared by different Departments.)

5. RESULTS- IMPACT OF HRIS BASED ORGANIZATIONAL TRANSFORMATION

After the implementation of Human Resource Information System (HRIS), in the target environment, Medicare Hospital, the survey was conducted to judge the satisfaction of the system. The survey reflected the satisfaction on the system transformation on the aspect of utility of the office knowledge base at the time of need. The response were measured on the likert scale of six, where highly effective information retrieval (HEIR) is 6, satisfactory information retrieval (SIR) is 5, sufficient information retrieval (SUIR) is 4, unsatisfactory information retrieval (UIR) is 3, Information retrieval Failure (IRF) 2, No response (HR) is 1. The survey results are reflected through the following graphic representation:



(Fig.10, Reflection of the survey results based on the respondents feedback regarding system effectiveness to supply information as and when required.)

The above figure reveals that according to the survey results, 52% of the respondents rated the new HRIS system as highly effective resource for information retrieval, 18% respondents have reported it as satisfactory information retrieval resource, 12% of respondent rated it as sufficient information retrieval 4% respondents rated the system as unsatisfactory information retrieval resource, 2% respondents have reported Information retrieval Failure, while 12% respondents have refused any response regarding.

Human Resource information System (HRIS) has a profound effect on firms that implement them. Most often these firms are replacing several related systems, such as a personnel database, payroll system, and benefit systems, with one HRIS that does it all. Many people focus on the improved reporting and processing that will be realized from the new system, and those are the reasons most firms choose to implement a new HRIS. But what many people do not focus on is that the new HRIS will most likely effect the company much more deeply – it will change the operating structure and principles of all the HR – related departments.

An integrated human resource information system (HRIS) application results in a drastically different environment than a cluster of related but separate systems. The core concept of a centralized data store inherent with an HRIS demands integrated work processes or consistently managing that store. The two attributes-centralized data storage and integrated work processes-will affect the company in ways most mangers do not expect. The HRIS System will offer a unified platform for different departmental operations and help reduce the repetitions and redundant activities (e.g. similar staff information can be shared through a single network in the form of centralized data instead of processing the same data at different departmental locations.)

6. CONCLUSION AND FINAL DISCUSSION

Through the implementation of a smart knowledge management technique i.e., HRIS, the aim of the case study was to evaluate the advantage of smooth `Knowledge sharing` among different locations within one organization at the time when the management require it the most. The case study presented in the article through the implementation of human resource information system (HRIS) in a hospital scenario was an effort to evaluate that how the management of an organization can organize the knowledge scatter in a manner that it can offer guarantee of its utility at the time of need, in the best form and speed.

`Medicare Hospital´ can go through process of comparing and evaluating several HRIS packages using a team of analysts or managers from different departments affected- HR, Payroll, Benefits, Employee Relations, Training, Accounts, Operations and so on for process improvement. As the team prepares its evaluation criteria and reviews HRIS features, much is learned about the goals and values of the various departments. The HR department must look for improved reporting of employee data, Payroll is concerned with the system´s paycheck calculations and regulatory reporting, while Benefits may be looking for a more streamlined enrollment process. As this team drives deeper into the selection criteria, the members learn more about each other and may start to see the emergence of really messy business processes. It can be a bittersweet process. The hiring process is a good example. As a person is recruited, hired and paid each department may have its own specialized system and process for managing the employee data.

As the HRIS evaluation team discovers redundant processing and data storage, its members start to see ways to make the process more efficient by aligning their part of the hiring process with the requirements of the other departments. The team members are excited to the better a way to get the work done, but scared by the ramifications of closer ties to other departments. They think: `If we improve the efficiency of the process (has HR enter the w-4 at the time of hire), we would not need as many people as much as we have in our department (we would not need to key W-4s anymore) and we might lose control of some piece of data that is crucial to our business function (how do we need that HR will key the W-4 correctly?). As the team evaluates an HRIS software package, it begins to get a better grasp on what the entire company's business processes are, and therefore what the company might require in an HRIS. The team will most likely find that none of the packages are an exact fit and that sub sequential effort is required to modify or integrate the chosen HRIS. Or if not enough due diligence and research have been done, the team may be facing this effort and not be aware of it. This gap in planning will show itself later in the implementation phase when the project team realizes that there are not enough resources- time, people and money- to implement the HRIS.

Perhaps the most critical results of the HRIS evaluation process are that the evaluation team set correct expectations for the project and gain executive management commitment. With correct or at least realistic expectations and an executive management team that seriously supports the team´s efforts; an HRIS implementation project has a much greater chance to succeed. Most often the HRIS evaluation team members spend most of their efforts building selection criteria and choosing an HRIS, instead of setting expectations and building executive support.

There are three primary activities in an HRIS implementation-

- Configuring the HRIS for the firm´s business processes and polices,
- Interfacing data with other systems and converting historical data into the HRIS,
- And preparing the organization for the new HRIS scenario.

An HRIS comes with built-in processes for most HR activities, but firms will need to customize the system to process according to their specific needs. For example : Every HRIS supports the process of benefits open enrollment, but the system does not come delivered with a firm´s specific benefit providers and eligibility rules. Customizing the HRIS for this, typically does not involve programming, the common activity is to enter specific data into control tables that then direct how the HRIS operates. The customizing or configuration tasks then become a process of understanding the firm´s business processes well enough to encode that logic into the HRIS.

Firm's management may find that the internal resource people assigned to the project do not have the skills or capabilities needed for the job, sometimes training can resolve this, but other times the people lack basic analytical skills required for the implementation. One of the key requirements for a person to be successful on an HRIS implementation project is that he/she has excellent analytical skills. However, whatever the case may be, with sophisticated and smart Knowledge Management (KM) Tools like HRIS, management of any Organization can be fully assured that they may have the best control over the internal Organizational knowledge base, though scattered through different organizational locations, and can obtain the required material or information whenever required effectively as well as efficiently.

The paper throws light on a corporate effort to strategically streamline and create an organized way to

arrange organizational knowledge scatter so to utilize the existing knowledge treasure at the time of need with less effort, ultimate speed and maximum accuracy. The authors tried to establish the significance of Human Resource Information System (HRIS) through prototyping an assumed organizational scenario (i.e., Medicare Hospital). The Human Resource Information System (HRIS) process description provided evidences that how organizational knowledge scatter can be managed systematically and smartly for providing the best support to not only the various departments but to the higher management for timely knowledge access and the best utilization for the organizational sustainability.

7. References

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